

1     **WHAT IS CLAIMED IS:**

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3     1.   An identification system for identifying documents  
4     bearing a magnetic stripe recorded with digital data and  
5     having a repeatable magnetic characteristic, comprising:

6         a magnetic stripe sensor for sensing the magnetic stripe  
7     to provide an analog signal representative of the recorded  
8     digital data and the repeatable magnetic characteristic;

9         a digitizer for sampling the analog signal to provide  
10    digitized samples indicative of the repeatable magnetic  
11    characteristic;

12         a waveform circuit for providing range data  
13    characteristic of the analog signal; and

14         a storage for storing representations of the digitized  
15    samples and the range data as identification data to identify  
16    the document.

17  
18         2.   An identification system according to claim 1  
19    wherein the magnetic stripe is recorded with a series of  
20    leading zeros and the digitizer samples the analog signal in a  
21    portion representing the series of leading zeros.

22  
23         3.   An identification system according to claim 1  
24    wherein the magnetic stripe is recorded with digital data  
25    represented by magnetic transitions and the digitizer samples  
26    a portion of the analog signal representing spaces between  
27    said magnetic transition to provide a digitized samples  
28    indicative of the repeatable magnetic characteristic.

1           4.    An identification system according to claim 1  
2 wherein the documents comprise magnetic stripe cards and  
3 wherein the digital data recorded on the magnetic stripes  
4 includes data for fetching identification data from the  
5 storage.  
6

7           5.    An identification system for identifying documents  
8 bearing a magnetic stripe recorded with digital data and  
9 having a repeatable magnetic characteristic, comprising:

10           a magnetic stripe sensor for sensing the magnetic stripe  
11 to provide an analog signal representative of the recorded  
12 digital data and the repeatable magnetic characteristic;

13           a magnetic characteristic circuit providing magnetic  
14 characteristic representations indicative of the repeatable  
15 magnetic characteristic;

16           a waveform circuit providing range representations  
17 indicative of a characteristic of the analog signal; and

18           a forming circuit to provide document identification  
19 representations based on the magnetic characteristic  
20 representations and the range representations to identify the  
21 documents.  
22

23           6.    An identification system according to claim 1  
24 further including storage to store document identification  
25 representations and a comparison structure for comparing  
26 document identification representations from the storage with  
27 document identification representations from the forming  
28 circuit to verify a document.

1           7.    An identification system according to claim 6  
2    wherein the storage stores a plurality of document  
3    identification representations for comparison with a document  
4    identification representation from the forming circuit and  
5    wherein verification requires a degree of dissimilarity.  
6

7           8.    An identification system according to claim 5  
8    wherein the magnetic characteristic circuit provides magnetic  
9    characteristic representations from the analog signal at  
10   substantially flat sections to produce a predetermined number  
11   of digital samples.  
12

13          9.    An identification system according to claim 5  
14   wherein the waveform circuits provides range representations  
15   indicative of amplitudes of the analog signal.  
16

17          10.   An identification system according to claim 5  
18   wherein the waveform circuit provides range representations  
19   indicative of ratios of amplitudes of the analog signal at  
20   predetermined locations.  
21

22          11.   A system for use with a card bearing a magnetic  
23   stripe having a repeatable magnetic characteristic and  
24   recorded with digital data in the form of magnetic  
25   transitions, said system for providing a sensed characteristic  
26   identification for the card, comprising:

27          means for sensing said magnetic stripe to provide  
28   representations of digitally recorded data and representations

1 of the repeatable magnetic characteristic in the form of  
2 digital sample signals;

3 means for selectively storing card identification words  
4 formed from the digital sample signals to manifest the  
5 repeatable magnetic characteristic of a card and amplitude  
6 characteristics of the digital sample signals.

7  
8 12. A process for identifying documents bearing a  
9 magnetic stripe having a distinct magnetic characteristic that  
10 is capable of repeated sensing to identify individual  
11 documents, said process including the steps of:

12 sensing the magnetic stripe to produce a representative  
13 analog signal manifesting the distinct magnetic  
14 characteristic;

15 providing magnetic characteristic representations  
16 indicative of the distinct magnetic characteristic;

17 providing range characteristic representations indicative  
18 of the analog signal regarding amplitude; and

19 providing identification representations based on the  
20 magnetic characteristic representations and the range  
21 characteristic representations to identify the documents.

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